

InSb 赤外撮像装置の開発

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Development of an infrared camera with InSb array

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We present the current status of development of our infrared imaging camera with InSb 256x256 array. Infrared remote sensing of planetary atmosphere is one of the most powerful measurement tools to understand the dynamical and chemical processes in the atmosphere since there are many emission and absorption lines in the near-infrared range (1-5 μm), and the solar flux becomes smaller compared to visible range. Further, it is essential to carry out continuous measurement with our own instrument since it is necessary to clarify the time variation of those phenomena with long-term data. In particular, we aim to clarify the Jupiter's H_3^+ auroral response to solar wind variation with statistical approach. We are therefore developing our own 1-5 μm infrared imager. This imager has a 256x256 InSb array detector, a field of view is 110arcsec with a F12 telescope with a plate scale of 0.43arcsec/pixel. In the case of 3.4 μm Jovian H_3^+ auroral measurement, we estimate S/N of the acquisition of data to be about 15 with 5 minute exposure using 1.6m/F12? telescope. This camera will be installed on the 1.6 m telescope of Nayoro observatory, and other overseas facilities, and used to monitor the Jupiter's H_3^+ aurora.

In this presentation, we will report a detailed description and the current status of development of our infrared camera.